Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A sorting method including the steps of:

forming an at least part annular, substantially monolayer flow of particulate material by axially flowing said particulate material over a ~~body member having a downwardly expanding substantially conical flow surface bounded by a substantially horizontal peripheral edge and whereby said flow is directed substantially vertically from said edge under gravity~~ dispersion member having a substantially conical flow surface bounded by an axially perpendicular peripheral edge whereby product flow is directed substantially in a monolayer from said edge passing through a collimator comprising of opposed inner and outer guides in a nested, coaxial, opposed and frusto conical, arrangement to form an annular, concentric monolayer product flow;

operating a detector having an optical element located substantially centered within said annular flow downstream of said ~~body member~~ collimator whereby the path length from all parts of the flow ~~to said~~ passing between the collimator and the optical element ~~detector~~ is substantially constant, as a consequence of the collimated and monolayered flow, said detector being selected to apply a sorting criterion on the particles in said flow; and

operating a sorting means responsive to said detector to sort particles in said flow according to said criterion.

2. (Currently Amended) ~~Sorting~~ A sorting means apparatus ~~including~~ comprising:

~~a body member having a substantially conical surface bounded by a substantially horizontal peripheral edge~~ a dispersion member having a substantially conical surface bounded by an axially perpendicular peripheral edge;

~~a supply of~~ an inlet supplying a particulate bulk material to said ~~flow~~ dispersion member conical surface, ~~said supply being selected whereby~~ so that said particulate bulk material

is radially disbursed and axially passes from said peripheral edge ~~and is directed substantially vertically from said edge under gravity forming an at least part annular, substantially monolayer flow~~;

a collimator for receiving the material passing downstream from the peripheral edge comprising of opposed inner and outer guides in a nested, coaxial, and frustoconical arrangement, forming an annular, substantially monolayer concentric particulate flow ;

a detector having an optical element located substantially centered within said annular flow downstream of ~~said body member whereby the path length from all parts of the flow to said detector is substantially constant, said detector being selected to apply a sorting criterion on the particles in said flow~~ the collimator whereby the path length from all parts of the flow to said optical element is substantially constant as a consequence of the collimated monolayer flow, said detector being selected to apply a sorting criterion on the particles in said bulk flow; and

sorting means responsive to said detector to sort particles in said flow according to said sorting criterion.

3. (Canceled)

4. (Currently Amended) Sorting apparatus according to Claim 2, wherein ~~said particulate flow passes the edge of the body member to enter a detection area downstream of the body member and containing the optical element~~ the material flow downstream of the collimator is substantially vertical.

5. (Currently Amended) Sorting apparatus according to Claim ~~4~~ 2, wherein said particulate flow is irradiated by an actual or effectively rotating a source, and that the detector detects the intensity of the reflected or transmitted component of said radiation.

6. (Currently Amended) Sorting apparatus according to Claim 5, wherein said source is a monochromatic point-source beam which scans the particulate flow in a direction substantially normal to the particulate flow direction.

7. (Original) Sorting apparatus according to Claim 6, wherein said reflected light is filtered to remove all other wavelengths than the required wavelength to render the detected signal monochromatic.

8. (Original) Sorting apparatus according to Claim 7, wherein said filtering is performed using one or more band pass optical filters that transmit only the required wavelength bands.

9. (Original) Sorting apparatus according to Claim 7, wherein said filtering is performed using one or more band reject optical filters that reflect only the required wavelength bands.

10. (Previously Presented) Sorting apparatus according to Claim 5, wherein said detected light is polychromatic.

11. (Original) Sorting apparatus according to Claim 10, wherein said polychromatic light is resolved into a spectrum by a diffraction grating, and wherein said detector comprises a plurality of detection elements disposed to interpret said spectrum.

12. (Original) Sorting apparatus according to Claim 11, wherein said detection elements are selected from photo multipliers, CCD arrays or like photoelectric sensitive measuring devices.

13. (Previously Presented) Sorting apparatus according to Claim 2, wherein said sorting means comprises one or more rejectors responsive to said detector and adapted to impinge upon a selected particle to displace said particle from said flow.

14. (Original) Sorting apparatus according to Claim 13, wherein said one or more rejectors each comprise means to generate an air blast which rejects a detected particle from the particulate flow in response to a signal generated in response to detection by said detector.

15. (Original) Sorting apparatus according to Claim 14, wherein said rejectors comprise an annular manifold containing a single row of air valves, each valve facing approximately 90° to the particulate flow, substantially parallel to the product flow and offset with a clearance gap therefrom.

16. (Original) Sorting apparatus according to Claim 14, wherein said rejectors comprise a plurality of annular manifolds each containing a single row of air valves, each valve facing approximately 90° to the particulate flow, substantially parallel to the product flow and offset with a clearance gap therefrom, and wherein said air valves are aligned between the rows in the direction of said flow, whereby aligned air valves are operated sequentially to impact a selected particle sequentially.

17. (Currently Amended) ~~A~~ The sorting method of claim 1 further comprising:

forming an at least part annular flow of material;

detecting by a detector radiation from the material in the at least part annular flow, the radiation from substantially all parts of the flow having ~~travelled~~ traveled substantially the same distance from the annular flow to the detector; and

operating a sorting mechanism in response to the detected radiation to sort the material in the flow.

18. (Currently Amended) The method of Claim 1, wherein the radiation is received by an optical element locked substantially centrally with respect to the at least part annular flow, and wherein the optical element directs the radiation to the detector.

19. (Previously Presented) The sorting method according to Claim18 wherein the optical element comprises a rotatable mirror.

20. (Currently Amended) ~~A~~ The sorting apparatus according to claim 1 further comprising:

means for forming an at least part annular flow of material;

a detector for detecting radiation from the material in the at least part annular flow after the radiation from substantially all parts of the flow has traveled substantially the same distance from the flow to the detector; and

a sorting mechanism for sorting material in the flow in response to the radiation detected by the detector.

21. (Currently Amended) A sorting apparatus according to Claim ~~20~~ 2, wherein an optical element is arranged substantially centrally with respect to the annular flow when the annular flow is created for directing radiation from the material in the annular flow to the detector.

22. (Currently Amended) The sorting apparatus according to Claim ~~21~~ 2 wherein the optical element comprises a rotating mirror.